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The major U.S. Internet service providers (Comcast, Verizon, and AT&T) are mounting a sustained and well-financed campaign to convince legislators, regulators, opinion makers and the general public of the validity of a number of false assertions, writes author Martyn Roetter of MFR Consulting. The ISPs wish to convince these audiences of the truth of the ''myths'' so as to obtain approval of multiple transactions that involve their acquisition of other companies in their entirety, and of additional selected assets—and also to encourage deregulation of the industry.

Dr. Roetter lists what he considers the 10 most common ''myths'' and points out how he believes they distort reality.

The Top Ten Myths Major Broadband Providers Use Against Net Neutrality

BY MARTYN ROETTER, D. PHIL.

The major U.S. Internet service providers (Comcast, Verizon, and AT&T) are mounting a sustained and well-financed campaign to convince legislators, regulators, opinion makers and the general public of the validity of a number of false assertions. Their purpose by convincing these audiences of the truth of the myths is to obtain approval of multiple transactions that involve their acquisition of other companies in their entirety, and of additional selected assets.

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The major ISPs are also seeking to support their claims that they are in the best position, and have a superior ability, to deliver immense value to customers and benefits to the U.S. economy, and that the best way to regulate their business activities is no regulation.

Here is a list in reverse order of significance of their 10 most duplicitous statements:

MYTH NO. 10: It does not matter, competitively or economically, whether or not a national wireless network operator has access to sub 1 GHz frequencies in its portfolio of spectrum licenses.

The Reality: The laws of physics, and the costs of civil engineering that are determined by the number of base station sites required, inevitably mean that the costs of deploying networks to achieve national coverage in sparsely populated areas are substantially higher at the higher frequencies. The number of base station sites needed is much lower at sub 1 GHz than in high frequency bands. [1] Furthermore, in urban areas deploy-

[1] See for example the Information Age Economics filings to the FCC at http://apps.fcc.gov/ecfs/document/view?id=7520946079, and http://apps.fcc.gov/ecfs/document/view?id=7520926985.

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ments in sub 1 GHz frequencies enable better performance to be offered to subscribers from external base stations when the subscribers are located indoors without having to install additional equipment in buildings.

MYTH NO. 9: If this acquisition is approved, we will invest more to deploy multimegabit per second broadband to at least 97 percent of the U.S. population.

The Reality: Promises such as these have been made over the years to secure approval of a series of acquisitions, including, for example, AT&T/BellSouth in 2006 (approved, but the promises were not then fulfilled), AT&T/T-Mobile in 2011 (abandoned by AT&T in the face of effective opposition), and now AT&T/DirecTV (under review).[2] Furthermore, arguments that these additional investments will only be possible thanks to cost savings from the proposed merger are belied by the history of the ISPs' discretionary allocations of their financial resources—for example in 2012 and 2013 AT&T chose instead to spend a combined amount of over $25 billion to buy back its shares.

MYTH NO. 8: We negotiate commercially reasonable terms and conditions with our partners.

The Reality: ISPs interpret ''commercially reasonable'' to allow them to offer wholesale data roaming prices to other operators in accordance with the FCC's Data Roaming Order of 2011 in which the highest such prices are more than 50 times the lowest ones on offer, and exceed the retail prices of data roaming.[3]

MYTH NO. 7: We have not increased our prices.

The Reality: ISPs have labeled increases in monthly payments that are introduced during the lifetime of a fixed price contract with a customer as ''administrative charges,'' admitting that they do not reflect any tax or mandatory new or increased fee imposed by a regulator. In their view these new charges are not price increases, even though the customer is paying more.[4]

MYTH NO. 6: Wireless broadband is becoming an acceptable substitute for fixed broadband service, and about 40 percent of U.S. households are wireless-only today.[5]

The Reality: The laws of physics and achievable capacity per unit of bandwidth make this substitutability an impossibility for most customers who live in areas where there are substantial numbers of subscribers seeking simultaneous access to shared capacity. The appropriate metric for looking at the capacity of broadband networks is Mbps/unit area (megabits per second) and one fiber to one location in an area can deliver more capacity than all of the available and conceivably available spectrum serving that area.

Furthermore, the pricing of and data caps applied in wireless broadband packages demonstrate that the ISPs are not themselves positioning wireless broadband as a reasonable substitute for fixed broadband for many of the most popular services, such as streaming video (e.g., Netflix). They do not believe their own propaganda.

Many of the alleged 40 percent of households that are ''wireless-only'' do, despite this label, depend on wired networks for some of their communications services.

Moreover, many of the alleged 40 percent of households that are ''wireless-only'' do, despite this label, depend on wired networks for some of their communications services (e.g., broadband internet access, fixed VoIP (voice over internet protocol) service)). This definition of ''wireless-only'' refers to households that do not subscribe to traditional copper-based PSTN (public switched telephone network) voice service, not to the significantly smaller number that may have no subscription to any wired network-based service.

This statistic is being used to give a false air of plausibility to the accompanying statement about the substitutability of wireless for fixed or wired broadband. The claim is an illegitimate extension of the reasonable substitutability of narrowband wireless voice for fixed voice service, where the inherent capacity limits of wireless networks are not a crucial limiting factor. Wireless and wired or fixed broadband are complementary to each other rather than directly competitive, and most of us need and want both.

MYTH NO. 5: The leading U.S. operators are the most efficient users of spectrum both nationally and when compared to operators in all other countries.

The Reality: This false claim is based on the use of a metric (total number of an operator's subscribers divided by the average amount of spectrum (bandwidth) it has available throughout its footprint) that has been shown conclusively to be spurious. This metric is heavily biased in favor of the most populous countries and the operators whose licenses cover the greatest number of people. It wrongly assumes that all subscribers have to share the same frequencies (no reuse) whereas in cellular networks only a limited number of subscribers in the same cell have to share capacity (and there are tens of thousands of cells in a U.S. operator's national network). Furthermore, on this metric China Mobile is more than three times as efficient as U.S. operators, an example conveniently left out of the published comparisons between the U.S. and countries with much smaller populations. Despite irrefutable evidence of the inherently misleading nature of, and findings from, this metric, the ISPs have continued to update it without any attempt to rebut its invalidation.[6]

MYTH NO. 4: Net neutrality rules would inhibit innovation and investment and make Web companies subject to common carrier regulation.

The Reality: *Most innovations in the services, applications, and in the terminal devices that have proved*

[2] A review of the history of underperformance of AT&T's promises of broadband coverage over the years can be found at http://arstechnica.com/business/2014/06/att-makes-the-same-promises-every-time-it-buys-a-new-company/.

[3] http://arstechnica.com/business/2014/07/att-and-verizon-accused-of-using-data-roaming-fees-to-overcharge-everyone/.

[4] http://www.abcactionnews.com/money/consumer/dont-waste-your-money/cell-phone-carriers-sneaky-new-fees-att-verizon-administrative-fee-others.

[5] http://www.ctia.org/your-wireless-life/how-wireless-works/annual-wireless-industry-survey.

[6] ''The Mystery of the Spurious Spectrum Efficiency Metric: Why Are America's Wireless Leaders Promoting a Meaningless Measure?'' BNA Daily Report for Executives, May 31, 2013 (105 DER B-1, 5/31/13).

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popular with customers have originated from sources outside the ISPs. Today's Web giants (Google, Amazon, Facebook, etc.) have been able to grow in an environment created as a result of Government initiatives that ensured they would not be dependent upon authorization from or subject to conditions defined by the ISPs in order to deliver their services and applications over the ISPs' networks. Net or rather broadband neutrality rules, as they should be called, are necessary to ensure the continuation of this environment in the broadband era.

MYTH NO. 3: We do not have gatekeeper market power since everyone has access to multiple alternative sources of service.

The Reality: Of the more than 1,700 broadband providers identifiable in the U.S. only the three largest ones control access to numbers of customers sufficient to give them gatekeeper or ''choke point'' control (monopsony power with respect to broadband-delivered services and broadband-connected devices) that can be abused to discriminate against device suppliers and providers of content, applications and services who depend inescapably on access to their networks.

MYTH NO. 2: The Internet has flourished because the Government has not played a significant role.

The Reality: The U.S. Government funded the original development of packet switching, the core technology of the Internet. Then the Federal Communications Commission approved the licensing of a commercial packet switch-based carrier (Telenet) despite objections from AT&T that rejected an offer to take over at no cost the commercial operation of the original Government-funded packet switched network.[7] Furthermore the World Wide Web and today's browsers grew out of initiatives at the European and European government-funded CERN (French acronym for the European Centre for Nuclear Research). The flourishing of services and applications delivered via the Internet was stimulated by the initiatives of the FCC and Department of Justice to ensure that control of access to and use of networks did not lie at the discretion of the major network operators, but rather any device could be connected to these networks subject to basic requirements of safety and non-interference, while their certification was not subject to the approval and potential veto of these operators.

MYTH NO. 1: Broadband is not a telecommunications service that should be regulated under a common carrier regime.

The Reality: All telecommunications services from narrowband voice to broadband video will soon be transmitted over broadband facilities. Therefore, this argument is tantamount to proposing the complete elimination of the common carrier principle in telecommunications, despite its pervasive role in our social and economic lives and the privileged rights of use of essential and scarce public resources (spectrum, rights-of-way) that the ISPs enjoy.

Broadband services are separable in terms of regulatory regime from the services, applications and content delivered over broadband facilities. Furthermore, significant sectors of U.S. communications law are technology-independent in their language and intent. The technological environment of today's digital broadband networks and the services they support are very different and more complex than the last century's narrowband analog voice network, so the details of appropriate and efficient regulations should be expected to be and are in need of serious revisions, including deletions, modifications, and additions.

Nevertheless, the principles and goals (such as ensuring universal, affordable access to adequate network facilities and services) are the same today as they have been for 80 years. They are indeed even more important than in the past given the much more pervasive role of broadband-dependent services and applications for and throughout our social and economic lives than was telephony in the 20th century. Moreover, some of the conditions that define the competitive dynamics and reality of broadband networks are unchanged from what they were in the days of telephony-dominated networks, namely the scarcity of essential public resources on which their installation and operation depend, and the enormous capital and other financial requirements of deploying and operating national networks.

The reality that the cyberworld lives in and depends on limited physical resources, and its network infrastructure requires substantial financial resources, justifies current concerns about potential abuses of power by one or a very small number of powerful corporations

Consequently, the number of viable facilities-based network competitors in any location is bound to be limited. The reality that the cyberworld lives in and depends on the physical world, and its network infrastructure requires substantial financial resources, justifies 21st century concerns about and attention to potential abuses of power by one or a very small number of powerful corporations, and inhibition at their discretion of innovations they do not like. This same motivation led to the divestiture of AT&T in the 1980s and the introduction of regulations that enabled the Internet to flourish during the 1990s and into the 21st century. These regulations need updating within a common carrier regime, not elimination.

[7] From http://www.cybertelecom.org/notes/att.htm:*1969: AT&T declines to bid on ARPA's RFQ to build the first ARPANet IMPs. 1971: AT&T is offered the opportunity to take over, own and operate ARPANet. ''AT&T could have owned the network as a monopoly service, but in the end declined. They finally concluded that the packet technology was incompatible with the AT&T network.'' 1972: AT&T decides not to take over control of the Internet.* See also the entries for the year 1971 at http://www.cybertelecom.org/notes/internet_history70s.htm, which quoted Internet pioneers as follows: *''The one hurdle packet switching faced was AT&T. They fought it tooth and nail at the beginning. They tried all sorts of things to stop it,'' and ''Roberts discussed the issue with Bernie Strassburg, Chief of the Common Carrier Bureau of the FCC. Strassburg advised that the best approach would be to form a new company and apply for an operating license from the FCC.''*